

THAT WHICH IS CLAIMED:

1. An apparatus adapted to extrude a sample from a mold for a gyratory compactor, the mold defining an interior portion and opposed open ends, said apparatus  
5 comprising:

a platform configured to sealingly engage one of the opposed ends of the mold,  
the platform defining a port extending to the interior portion of the mold  
when the mold is engaged therewith;

10 a piston member configured to be disposed in the interior portion of the mold  
between the sample and the platform, the piston member being further  
configured to be movable with respect to the interior portion of the mold  
while forming a pressure seal therewith; and

15 a pressure source operably engaged with the inlet port and configured to exert a  
pressure through the inlet port and against the piston member so as to  
extrude the piston member and the sample from the mold through the  
other of the opposed ends of the mold.

2. An apparatus according to Claim 1 wherein the piston member defines a  
perimeter and the apparatus further comprises an O-ring disposed about the perimeter of  
20 the piston member, the O-ring being configured to engage a wall defining the interior  
portion of the mold so as to allow the piston member to form a pressure seal therewith  
while also allowing the piston member to be movable with respect thereto.

3. An apparatus according to Claim 1 further comprising an O-ring operably  
25 engaged with the one end of the mold so as to be disposed between the mold and the  
platform and to form a pressure seal therebetween when the mold is engaged with the  
platform.

4. An apparatus according to Claim 1 further comprising at least one  
30 securing device configured to be operably engageable between the platform and the mold  
so as to secure the mold to the platform as the sample is extruded.

5. An apparatus according to Claim 1 wherein the pressure source further comprises an air pump configured to pump air at a selected substantially constant flow rate through the inlet port to the interior portion of the mold.

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6. An apparatus according to Claim 5 wherein the air pump is further configured to have a selected maximum pressure output.

7. A system adapted to produce a compacted paving mix sample, said system comprising:

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a gyratory compactor apparatus;

an open-ended cylindrical mold having a wall defining an interior portion, the

mold being configured to be operably engageable with the gyratory

compactor apparatus and adapted to contain the paving mix sample therein

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for compaction by the gyratory compactor apparatus; and

an extrusion apparatus operably engaged with the gyratory compactor apparatus

and configured to extrude the compacted paving mix sample from the

mold, the extrusion apparatus comprising:

a platform configured to sealingly engage one of the open ends of the

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mold, the platform defining a port extending to the interior portion of the mold when the mold is engaged therewith;

a piston member configured to be disposed in the interior portion of the

mold between the sample and the platform, the piston member

being further configured to be movable with respect to the interior

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portion of the mold while forming a pressure seal therewith; and

a pressure source operably engaged with the inlet port and configured to

exert a pressure through the inlet port and against the piston

member so as to extrude the piston member and the sample from

the mold through the other of the open ends of the mold.

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8. A system according to Claim 7 wherein the piston member defines a perimeter and the extrusion apparatus further comprises an O-ring disposed about the perimeter of the piston member, the O-ring being configured to engage the wall defining the interior of the mold so as to allow the piston member to form a pressure seal  
5 therewith while also allowing the piston member to be movable with respect thereto.

9. An apparatus according to Claim 7 further comprising an O-ring operably engaged with the one open end of the mold so as to be disposed between the mold and the platform and to form a pressure seal therebetween when the mold is engaged with the  
10 platform.

10. An apparatus according to Claim 7 further comprising at least one securing device configured to be operably engageable between the platform and the mold so as to secure the mold to the platform as the sample is extruded.  
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11. An apparatus according to Claim 7 wherein the pressure source further comprises an air pump configured to pump air at a selected substantially constant flow rate through the inlet port to the interior portion of the mold.

12. An apparatus according to Claim 11 wherein the air pump is further configured to have a selected maximum pressure output.  
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13. A method for extruding a sample from a mold for a gyratory compactor, the mold defining an interior portion and opposed open ends, said method comprising:  
25 inserting a piston member into the interior portion of the mold, the piston member being configured to be movable with respect to the interior portion of the mold while forming a pressure seal therewith;  
sealingly engaging one of the opposed ends of the mold with a platform such that the piston member is disposed between the sample and the platform, the  
30 platform defining an inlet port extending to the interior portion of the mold when the mold is engaged therewith; and

exerting a pressure through the inlet port and against the piston member with a pressure source operably engaged with the inlet port so as to extrude the piston member and the sample from the mold through the other of the opposed ends of the mold.

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14. A method according to Claim 13 further comprising operably engaging an O-ring with the piston member about a perimeter thereof, such that, when the piston member is inserted into the interior portion of the mold, the O-ring engages a wall defining the interior portion of the mold and forms a pressure seal therewith while  
10 allowing the piston member to be movable with respect thereto.

15. A method according to Claim 13 wherein sealingly engaging one of the opposed ends of the mold with the platform further comprises operably engaging an O-ring between the one end of the mold and the platform so as to form a pressure seal  
15 therebetween when the mold is engaged with the platform.

16. A method according to Claim 13 further comprising operably engaging at least one securing device between the platform and the mold so as to secure the mold to the platform as the sample is extruded.

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17. A method according to Claim 13 wherein exerting a pressure through the inlet port further comprises pumping air at a selected substantially constant flow rate, with an air pump, through the inlet port to the interior portion of the mold.

25 18. A method according to Claim 17 wherein pumping air further comprises pumping air with an air pump configured to have a selected maximum pressure output.